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Selecting Nozzles for Postemergence Herbicides

Robert G. Hartzler

Iowa State University, hartzler@iastate.edu

H. Mark Hanna

Iowa State University, hmhanna@iastate.edu

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Selecting Nozzles for Postemergence Herbicides

Abstract

An earlier ICM News article discussing affects of nozzle type and size on spray coverage prompted a question from a farmer regarding nozzle selection. In recent years there have been many advances in nozzle design. The primary improvement has been development of nozzles that minimize the formation of driftable droplets (< 200 micron) while still producing a droplet spectrum that provides the level of coverage required for consistent, postemergence weed control.

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Selecting Nozzles for Postemergence Herbicides

ICM News

February 15, 2016

An earlier [ICM News article](#) discussing affects of nozzle type and size on spray coverage prompted a question from a farmer regarding nozzle selection. In recent years there have been many advances in nozzle design. The primary improvement has been development of nozzles that minimize the formation of driftable droplets (< 200 micron) while still producing a droplet spectrum that provides the level of coverage required for consistent, postemergence weed control.

The primary factor determining the appropriate spray nozzle is the product being used. Most herbicide labels specify either the nozzle type or droplet size classification (i.e. fine, medium, coarse) that should be used (Table 1). Unfortunately, there is not a uniform system of providing this information on labels.

A standardized system of classifying droplet size has been adopted, and this information is provided by nozzle manufacturers. Droplet size classification is determined not only by

the nozzle type, but also by nozzle size and operating pressure. For example, an XR TeeJet 11004 operated at 40 PSI is rated at Medium, whereas at 50 PSI it is rated at Fine. When choosing nozzles, be sure to consider the full range of operating pressures they will be operated under when using rate controllers that adjust operating pressure based on sprayer speed.

Table 1. Label recommendations for nozzle type, droplet size, and carrier volume (GPA).

Product	Herb. Group	Nozzle type ¹	Droplet size ¹	GPA
Liberty (glufosinate)	10	Flat fan	NS	>10
Cobra(lactofen)	14	Flat fan, hollow cone	NS	10-20
Reflex (fomesafen)	14	Flat fan, hollow cone	NS	10-20
Ultra Blazer (acifluorfen)	14	Flat fan, hollow cone	Medium	10-20
Armezon (topramezone)	27	NS	NS	>10
Callisto (mesotrione)	27	Flat fan	Medium to Coarse	10-20
Laudis (tembotrione)	27	NS	Medium to Coarse	10-20
Roundup PowerMax (glyphosate)	9	NS	Use nozzles that avoid generating a fine mist	3-40
Enlist Duo (2,4-D + glyphosate)	4	See label	NS	10-15
2,4-D LVE	4	NS	Avoid nozzles that produce small droplets that may drift	>3
Clarity (dicamba)	4	NS	Coarse	3-50

¹NS indicates nozzle type or droplet size was not specified on label.

The Enlist Duo label lists specific combinations of nozzles and PSI ranges that may be used with this product. This is a new method of regulating the risk of drift associated with herbicide applications adopted by EPA. Only nozzles that have been evaluated for

the range of droplet sizes produced when applying Enlist Duo can be recommended on the label. Additional nozzles are likely to be added to the label as new information is developed.

Spray volume also affects herbicide efficacy. Postemergence applications are often made when weeds are 'shielded' from direct contact with the spray by the crop canopy. Spray volume can have more of an impact on the ability to achieve good coverage of targets within a canopy than the nozzle type. Most herbicide labels recommend increasing spray volume when making applications to large weeds or in situations with dense canopies.

As herbicide programs are adjusted to account for herbicide resistance, the need to alter application methods is often overlooked. Sprayers must be properly equipped and calibrated in order to optimize herbicide performance and minimize the potential for off-target movement.

The use of trade names in this article is for clarity by the reader. Due to the large number of generic products on the market ISU is not able to include all products. Inclusion of a trade name does not imply endorsement of that particular brand of herbicide and exclusion does not imply non-approval.

Category: Weeds

Tags:

weed management

herbicide application

spray nozzles

postemergence treatments

herbicide program

Weeds

Authors:



Bob Hartzler Professor of Agronomy

Dr. Bob Hartzler is a professor of agronomy and an extension weed specialist. He conducts research on weed biology and how it impacts the efficacy of weed management programs in corn and soybean. Dr. Hartzler also teaches undergraduate classes in weed science and weed identificatio...



H Hanna Scientist II

Dr. H. Mark Hanna is an extension agricultural engineer with Iowa State University. Hanna's main focus is sustainable agricultural systems, including chemical application, energy consumption, tillage/planting, and harvest. His research focus has been on developing ways for field equipment to en...

